(12) **UK Patent Application** (19) **GB** (11) **2 229 541** (13) **A**

(21) Application No 8901506.9

(22) Date of filing 24.01.1989

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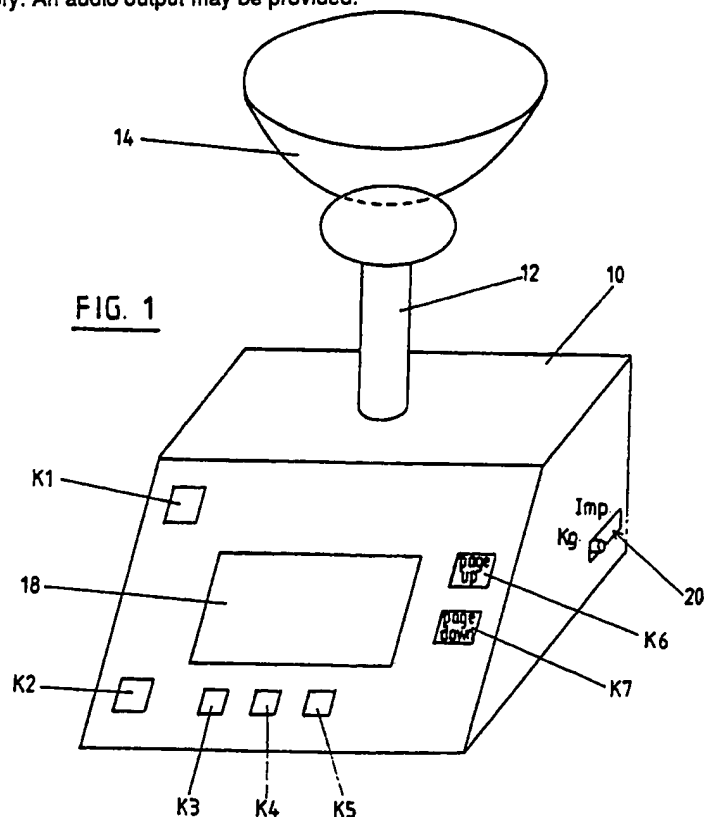United Kingdom

(51) INT CL⁵
G01G 19/413

(52) UK CL (Edition K)
G1W WL

(56) Documents cited
GB 2133166 A   GB 2046926 A   EP 0196277 A
WO 86/07447 A   AU 0575780 B   JP 55136914 A
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(58) Field of search
UK CL (Edition J) G1W
INT CL⁴ G01G

(54) **Calorie counting scales**

(57) Weighing scales include an electronic calculating system having a memory storing calorie values of a plurality of food items, and manually operable controls K1–K6 for selecting any desired food item from the memory and causing the calculating system to calculate a calorie count for the item of food being weighed from a weight-representing signal provided by a transducer and from the calorie count stored in the memory. The scales include a display 18 arranged to display the weight of the item of food being weighed and/or its calorie count. The system includes a menu-driven directory of food items the calorie values of which are stored in the memory. An audio output may be provided.

FIG. 1

At least one drawing originally filed was informal and the print reproduced here is taken from a later filed formal copy.
The claims were filed later than the filing date within the period prescribed by Rule 25(1) of the Patents Rules 1982.
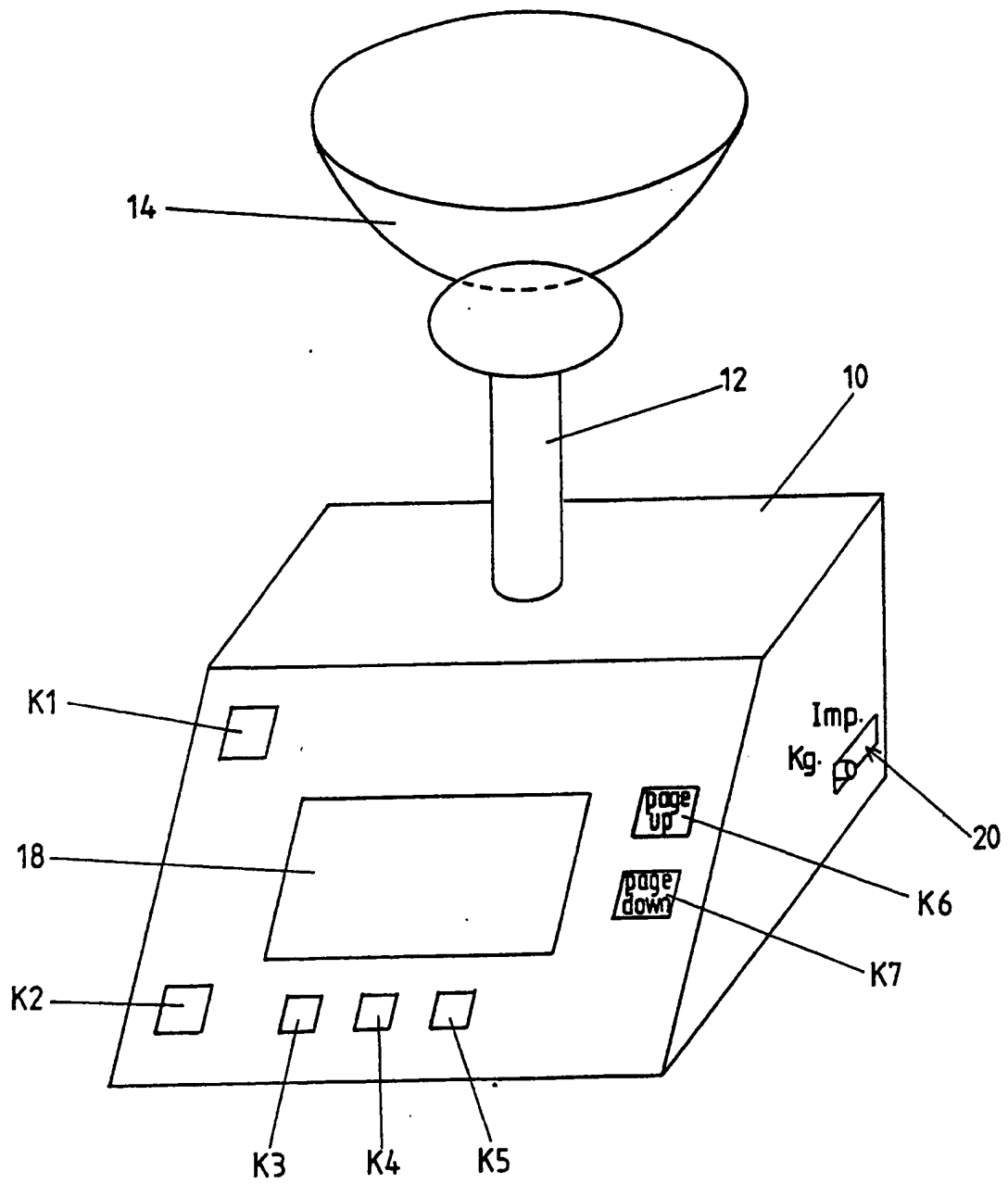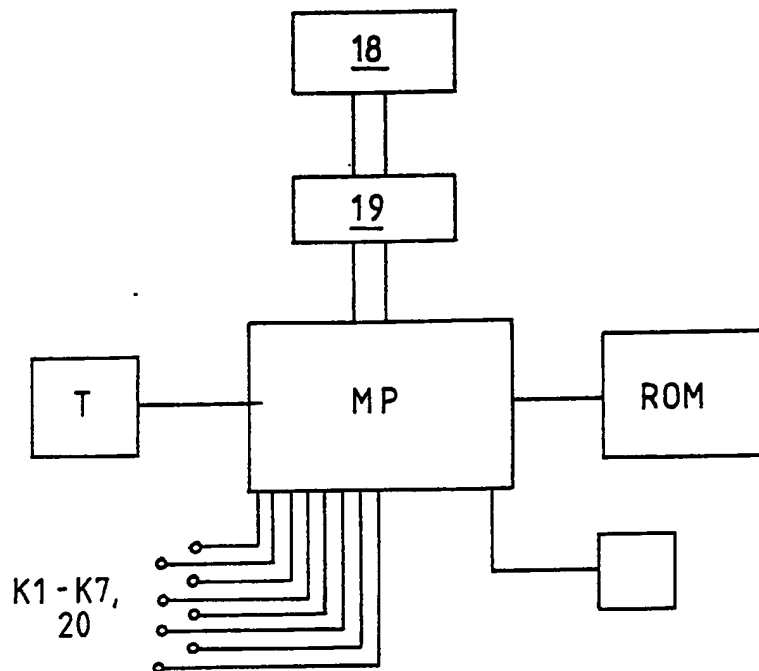
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K1

Imp.

Kg.

20

page
up

K6

18

page
down

K7

K2

K3 K4 K5

FIG. 1

FIG. 2

Calorie Counting Weighing Scales

This invention relates to weighing scales and more particularly to weighing scales which are able to give a calorie count in respect of an item of food being weighed.

It has long been understood that the only means of losing or controlling body weight is to control the amount of energy ingested by the individual. The single most common reason for people to fail controlling their weight is that they fail to correctly calculate the number of calories contained within the foods and liquids which they consume. The only way at the moment that a calorie count can be calculated comprises weighing the food to be consumed, then look up the calorific value of that food in a book and multiply the weight and calorific value together to obtain the calorie count for that item of food.

In accordance with this invention, there is provided a weighing scale for receiving an item of food and including a transducer for providing an electrical signal representing the weight of the food item, and an electronic calculating system which includes a memory storing calorie values (per unit of weight) of a plurality of food items, and manually operable controls for selecting any desired food item from the memory and causing the calculating system to calculate a calorie count for the item of food being weighed from the weight representing signal provided by the transducer and from the calorie value stored in the memory.

Preferably the scales include a display which will display the weight of the item of food being weighed, and/or its calorie count.

Preferably the scales are able to save the calorie count of one item of food whilst another item of

food is being weighed and a calorie count for that item is being calculated. The calorie counts for a number of successive items of food can in this way be totalised and recalled to the display when required.

Preferably the system comprises a menu driven directory of food items the calorific values of which are stored in the memory (which is preferably a non-erasable solid state read only memory). The controls enable the user to page through the directory, the successive food items in the memory being displayed in turn, until the relevant item is reached and displayed. Preferably the controls enable the user to page down or up through the directory, at his choice. Preferably the controls enable the user to page through the directory slowly (e.g one item at a time) or quickly. Preferably the paging is achieved with two control keys, i.e. page-up and page-down: the slow, or one-at-a-time paging is achieved by momentary depression of the relevant key, whilst fast paging is achieved by holding the relevant key down.

In the slow-page mode, the full name or an appropriate abbreviation of the food items is displayed: however, preferably in the fast-paging mode, only a short abbreviation and preferably just the first letter, of the food items is displayed. Thus whilst the relevant control key is held down, successive single letters appear on the display. When the key is released, the full name of the item at which the paging has stopped is displayed.

An embodiment of this invention will now be described by way of example only and with reference to the accompanying drawings, in which;

FIGURE 1 is a view of a calorie counting weighing scale in accordance with the invention; and

FIGURE 2 is a schematic block diagram of the electronic system of the scales.

Referring to Figure 1 of the drawings, the

calorie counting weighing scales comprise a housing 10 having a stem 12 projecting upwardly through its top to support a receptacle or platform 14 for food to be weighed, which food may be in solid or liquid form. The stem 12 transmits the weight of the food plus receptacle 14 to a device or transducer within the housing, which produces an electrical signal representing the magnitude of the weight concerned.

A front panel 16 of the scales, which is sloping in the example shown, is provided with a liquid crystal display 18 and with a number of keys which include a mode-select key K1, an on/off key K2, a memory – on/off key K3, a memory-increment key K4, a memory-recall key K5 and page-up and page-down keys K6, K7. A selector 20 is provided on the side of the housing, to select the units (e.g metric or imperial) in which the weight is measured and displayed.

In use, firstly the receptacle 14 is fitted to the top of the stem 12 of the scales. The unit is then switched on and automatically resets itself to zero. The display 18 therefore shows the weight to be zero, in the selected units: the displayed message is typically in the form: WEIGHT=0.00 kg.

Next the item of food to be weighed is placed on or in the receptacle 14, and the weight of this item of food displayed at 18 in the form as mentioned above, e.g WEIGHT= 0.53 kg. If the user now wishes to find the calorific value of the item of food which has been weighed, the mode-select key K1 is depressed, to access the directory of foodstuffs from the computer's read only memory (ROM). The display now shows the first item in the directory. Let us assume this to be APPLES: then the user pages down the directory by depressing the "Page Down" key K7, causing the display to change momentarily to the next item in the directory, say AVOCADOES. By keeping the key K7 depressed for fast-forward scanning, the display 18

changes to A, and then moves quickly through the directory but showing the first letter only of the successive items of food. So the next display is B then C,D.. etc. For example assume that the receptacle 14 has some Lychees in it, and say the user only releases key K7 when O is being displayed. Then in order to find LYCHEES the user has to. return through the directory. This is done by pressing the "Page UP" key K6. So the display now changes from say ORANGE to N,M.... and say when key K6 is released LYONS SYRUP is displayed. In order now to reach the required item in the directory, the directory is single-stepped by successive momentary depressions of key K6 until LYCHEES appears.

Next the mode-select key K1 is pressed once again and the onboard microelectronics calculates the total calorie content of the food in the receptacle 14, which is displayed with a message of the form TOTAL CALS: 178. Should the user now wish to save this count, the memory - on/off key K3 is pressed, then the memory-increment key K4 and if required the machine is reset for another item of food, by pressing the mode-select key K1. Otherwise, the machine may be switched off by switch K2 and the calorie count of the LYCHEES is retained in the memory for future reference

When the calorie count in the memory is no longer required, the count is discarded by turning the memory off by pressing key K3.

It will be appreciated that the directory may be organised in any other suitable way, other than alphabetical order of individual items of food, for example by way of food-types.

Referring to Figure 2, there is shown a schematic block diagram of the electronic system of the calorie counting scales. This system comprises a microprocessor MP, a transducer T linked to the stem 12 of the scales and

providing the microprocessor with an electrical signal representing the weight of the item in the receptacle 14, and the read-only memory ROM which is a high density solid state device storing the directory of food items and their calorific values (number of calories per unit of weight). The ROM has a capacity of at least 32K bytes to store a directory of approximately 1500 food items. The electronic system further comprises a small random access memory RAM for holding and totalising the calculated calorie counts (i.e. those calculated from the measured weight of a food item and its calorific value as provided from the ROM once the correct food item has been located from the directory). Also shown in Figure 2 are the various operating keys K1 - K7 and 20 and the display 18 and its driver 19.

The calorie counting scales may be powered from batteries or transformed mains. Preferably the front panel of the unit is provided with a thin, flexible plastic cover giving an easy-clean surface and ensuring a high standard of hygiene, whilst enabling the various keys to be depressed through the flexing of this cover element.

As a further feature, the scales may be provided with a speech unit giving an audio output of the food items, weights and calorie counts shown on the visual display.

CLAIMS

1) Weighing scales for receiving an item of food and including a transducer for providing an electrical signal representing the weight of the food item, an electronic calculating system which includes a memory storing calorie values of a plurality of food items, and manually operable controls for selecting any desired food item from the memory and causing the calculating system to calculate a calorie count for the item of food being weighed from the weight-representing signal provided by the transducer and from the calorie count stored in the memory.

2) Weighing scales as claimed in claim 1 including a display arranged to display the weight of the item of food being weighed and/or its calorie count.

3) Weighing scales as claimed in claim 1 or 2, arranged to save the calorie of an item of food whilst another is being weighed and a calorie count for that item is calculated.

4) Weighing scales as claimed in claim 2, in which the control system comprises a menu-driven directory of food items the calorie values of which are stored in the memory.

5) Weighing scales as claimed in claim 4, in which the manual controls enable a user to page through the directory, successive food items in the memory being displayed in turn.

6) Weighing scales as claimed in claim 5, in which the manual controls enable the user to page through the directory selectively at either two different speeds.

7) Weighing scales as claimed in claim 6, in which

one of the manual controls when depressed momentarily progresses the directory by one item and when depressed continuously progresses the directory at the faster speed.

8)   Weighing scales substantially as herein described with reference to the accompanying drawings.